Amendments to the Claims

This listing of claims will replace all prior versions, all listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) A data recovery system, comprising:
an oversampler, which oversamples an input signal for n times and thus generates a plurality of oversampled signals, where n is an integer;
a phase detection circuit, which receives the oversampled signals , and outputs a phase signal according to transitions between the oversampled signals; [[and]]
a data pick circuit, which groups the oversampled signals into n groups and picks one of the groups as an output data according to the phase signal, wherein the output data is m-bit and m is an integer;
a data overlap/skip detection circuit, which determines a status of the data according to the phase signal and a previous phase signal, and outputs the status; and
a data correction circuit, which picks the output data and a last bit of a previous oversampled signal according to the status, and output an accurate data.

2. (Canceled)

3. (Original) The system as claimed in claim 1, wherein the phase detection circuit comprises:
a transition detector, which detects the transitions between the oversampled signals; and
a tally, which groups the plurality of transitions into n groups, and outputs the phase signal corresponding to one of the groups with the maximum transition number.

4. (Original) The system as claimed in claim 3, wherein the transition detector comprises a plurality of XOR gates to perform XOR operations to each of the oversampled

signals and the adjacent oversampled signal.

5. (Original) The system as claimed in claim 3, wherein the tally comprises:
n adders, which count the number of transition; and
a maximum selector, which outputs the phase signal according to the maximum number of transition.

6. (Original) The system as claimed in claim 1, wherein the data pick circuit is a multiplexer.

7. (Canceled)

8. (Currently Amended) The system as claimed in claim [[2]] 1, wherein the status comprises an overlap signal, a skip signal and a normal signal, respectively for data overlap, data skip and no data overlap/skip.

9. (Currently Amended) The system as claimed in claim [[2]] 1, wherein the data correction circuit comprises a buffer.

10. (Original) The system as claimed in claim 8, wherein when the status is the overlap signal, the data correction circuit picks m-1 bits from the m-bit output data.

11. (Original) The system as claimed in claim 8, wherein when the status is a skip signal, the data correction circuit receives the m-bit output data and a last bit of a previous oversampled signal.

12. (Original) The system as claimed in claim 8, wherein when the status is a normal signal, the data correction circuit receives the m-bit output data.

13. (Currently Amended) A data recovery method, comprising:

oversampling an input signal for n times and producing a plurality of oversampled signals, wherein n is an integer;

detecting the transitions of oversampled signals and outputting a plurality of transition signals;

outputting a phase signal according to the transition signals; [[and]]

grouping the oversampled signals into n groups, and outputs one of the groups as an output data according to the phase signal, wherein the output data is m-bit data and m is an integer;

producing a status according to the phase signal and a previous phase signal;

temporarily storing the output data in a buffer according to the status; and

outputting an m-bit accurate data from the buffer.

14. (Canceled)

15. (Currently Amended) The method as claimed in claim [[14]] 13, wherein the status comprises an overlap signal, a skip signal and a normal signal, respectively corresponds to data overlap, data skip and no data overlap/skip conditions.

16. (Original) The method as claimed in claim 15, wherein the buffer receives m-1 bit from the m-bit output data when the status is an overlap signal.

17. (Original) The method as claimed in claim 15, wherein the buffer receives m-bit output data and a last bit of a previous oversampled signal when the status is a skip signal.

18. (Original) The method as claimed in claim 15, wherein the buffer receives m-bit

output data when the status is a normal signal.

19. (Currently Amended) A data recovery method, comprising:

oversampling an input signal and producing a plurality of oversampled signals;

detecting transitions of oversampled signals and outputting a plurality of transition signals;

producing a phase signal according to the transition signals; [[and]]

outputting an output data from the oversampled signals according to the phase signal;

producing a status according to the phase signal and a previous phase signal; and

picking the output data and a last bit of a previous oversampled signal according to the status and outputting an accurate data.

20.(Canceled)

21. (New) The method pf claim 19, further comprising:

temporarily storing the output data in a buffer according to the status.

22. (New) The method as claimed in claim 19, wherein the status comprises an overlap signal, a skip signal and a normal signal, respectively corresponds to data overlap, data skip and no data overlap/skip conditions.